# USAV2002-0187 US PCTsequence listing.txt WAR 2006 SEQUENCE LISTING

<110>	GRUENEBERG, Dorre BAIN, Gerard KOTHARI, Nayantara	
<120>	RETROVIRAL VECTORS FOR DELIVERY OF INTERFERING RNA	
<130>	USAV2002/0187 US PCT	
<140> <141>	not yet assigned 2006-03-28	
<150> <151>	60/513,313 2003-10-22	
<160>	14	
<170>	PatentIn version 3.2	
<210> <211> <212> <213>	1 62 DNA Artificial	
<220> <223>	Polylinker Sequence	
<400> aattcg	1 actg gcacagcctc caggttcaag agacctggag gctgtgccag tctttttgga	60
aa		62
<210> <211> <212> <213>	2 62 DNA Artificial	
<220> <223>	Polylinker Sequence	
<400> aattcg	2 ctgg gactcctttg catgttcaag agacatgcaa aggagtccca gctttttgga	60
aa		62
<210> <211> <212> <213>	3 62 DNA Artificial	
<220> <223>	Polylinker Sequence	
<400> gatccg	3 actg gcacagcctc caggttcaag agacctggag gctgtgccag tctttttgga	60
aa		62

		11×4 / / / / / / / / / / / / / / / / / / /	A / II . 101 1 C /		1 f 1 f 1 f 1 f 1	
<210> <211> <212> <213>	4 62 DNA Artificial	03AV2002-01	107 US PC136	equence 11St	ing. txt	
<220> <223>	Polylinker Sequ	ience				
<400> gatccg	4 ctgg gactcctttg	catgttcaag	agacatgcaa	aggagtccca	gctttttgga	60
aa						62
<210> <211> <212> <213>	5 62 DNA Artificial					
<220> <223>	Polylinker sequ	ience				
<400> aattcga	5 actc cagtggtaat	ctacttcaag	agagtagatt	accactggag	tctttttgga	60
aa						62
<210> <211> <212> <213>	6 62 DNA Artificial					
<220> <223>	Polylinker Sequ	ience				
<400> gatccga	6 actc cagtggtaat	ctacttcaag	agagtagatt	accactggag	tctttttgga	60
aa						62
<210> <211> <212> <213>	7 241 DNA Artificial					
<220> <223>	U6 Promoter sec	quence				
<400> ttccca	7 tgat tccttcatat	ttgcatatac	gatacaaggc	tgttagagag	ataattagaa	60
ttaatt	tgac tgtaaacaca	aagatattag	tacaaaatac	gtgacgtaga	aagtaataat	120
ttcttg	ggta gtttgcagtt	tttaaaatta	tgttttaaaa	tggactatca	tatgcttacc	180
gtaact	tgaa agtatttcga	tttcttgcct	ttatatatct	tgtggaaagg	acgaaacacc	240
g						241

<211> 6498 DNA <213> Artificial <220> <400> 8

<223> Modified lentivirus (pLenti-U6-Blasti)

60 aatgtagtct tatgcaatac tcttgtagtc ttgcaacatg gtaacgatga gttagcaaca 120 tgccttacaa ggagagaaaa agcaccgtgc atgccgattg gtggaagtaa ggtggtacga tcgtgcctta ttaggaaggc aacagacggg tctgacatgg attggacgaa ccactgaatt 180 240 qccqcattqc agagatattg tatttaagtg cctagctcga tacataaacg ggtctctctg gttagaccag atctgagcct gggagctctc tggctaacta gggaacccac tgcttaagcc 300 360 tcaataaaqc ttgccttgag tgcttcaagt agtgtgtgcc cgtctgttgt gtgactctgg 420 taactagaga tccctcagac ccttttagtc agtgtggaaa atctctagca gtggcgcccg aacagggact tgaaagcgaa agggaaacca gaggagctct ctcgacgcag gactcggctt 480 540 gctgaagcgc gcacggcaag aggcgagggg cggcgactgg tgagtacgcc aaaaattttg 600 actagcggag gctagaagga gagagatggg tgcgagagcg tcagtattaa gcgggggaga 660 attagatcgc gatgggaaaa aattcggtta aggccagggg gaaagaaaaa atataaatta aaacatatag tatgggcaag cagggagcta gaacgattcg cagttaatcc tggcctgtta 720 gaaacatcag aaggctgtag acaaatactg ggacagctac aaccatccct tcagacagga 780 840 tcagaagaac ttagatcatt atataataca gtagcaaccc tctattgtgt gcatcaaagg 900 atagagataa aagacaccaa ggaagcttta gacaagatag aggaagagca aaacaaaagt 960 aaqaccaccq cacaqcaagc ggccgctgat cttcagacct ggaggaggag atatgaggga 1020 caattggaga agtgaattat ataaatataa agtagtaaaa attgaaccat taggagtagc acccaccaag gcaaagagaa gagtggtgca gagagaaaaa agagcagtgg gaataggagc 1080 1140 tttgttcctt gggttcttgg gagcagcagg aagcactatg ggcgcagcgt caatgacgct gacggtacag gccagacaat tattgtctgg tatagtgcag cagcagaaca atttgctgag 1200 1260 ggctattgag gcgcaacagc atctgttgca actcacagtc tggggcatca agcagctcca 1320 ggcaagaatc ctggctgtgg aaagatacct aaaggatcaa cagctcctgg ggatttgggg 1380 ttgctctgga aaactcattt gcaccactgc tgtgccttgg aatgctagtt ggagtaataa 1440 atctctggaa cagatttgga atcacacgac ctggatggag tgggacagag aaattaacaa 1500 ttacacaagc ttaatacact ccttaattga agaatcgcaa aaccagcaag aaaagaatga 1560 acaagaatta ttggaattag ataaatgggc aagtttgtgg aattggttta acataacaaa 1620 ttggctgtgg tatataaaat tattcataat gatagtagga ggcttggtag gtttaagaat agtttttgct gtactttcta tagtgaatag agttaggcag ggatattcac cattatcgtt Page 3 1680

tcagacccac	ctcccaaccc	cgaggggacc	cgacaggccc	gaaggaatag	aagaagaagg	1740
tggagagaga	gacagagaca	gatccattcg	attagtgaac	ggatctcgac	ggtaatcgat	1800
tttcccatga	ttccttcata	tttgcatata	cgatacaagg	ctgttagaga	gataattaga	1860
attaatttga	ctgtaaacac	aaagatatta	gtacaaaata	cgtgacgtag	aaagtaataa	1920
tttcttgggt	agtttgcagt	ttttaaaatt	atgttttaaa	atggactatc	atatgcttac	1980
cgtaacttga	aagtatttcg	atttcttggc	tttatatatc	ttgtggaaag	gacgaaacac	2040
cgaattcacc	ggtcggttag	taatgagttt	ggaattaatt	ctgtggaatg	tgtgtcagtt	2100
agggtgtgga	aagtccccag	gctccccagg	caggcagaag	tatgcaaagc	atgcatctca	2160
attagtcagc	aaccaggtgt	ggaaagtccc	caggctcccc	agcaggcaga	agtatgcaaa	2220
gcatgcatct	caattagtca	gcaaccatag	tcccgcccct	aactccgccc	atcccgcccc	2280
taactccgcc	cagttccgcc	cattctccgc	cccatggctg	actaatttt	tttatttatg	2340
cagaggccga	ggccgcctct	gcctctgagc	tattccagaa	gtagtgagga	ggcttttttg	2400
gaggcctagg	cttttgcaaa	aagctcccgg	gagcttgtat	atccattttc	ggatctgatc	2460
agcacgtgtt	gacaattaat	catcggcata	gtatatcggc	atagtataat	acgacaaggt	2520
gaggaactaa	accatggcca	agcctttgtc	tcaagaagaa	tccaccctca	ttgaaagagc	2580
aacggctaca	atcaacagca	tccccatctc	tgaagactac	agcgtcgcca	gcgcagctct	2640
ctctagcgac	ggccgcatct	tcactggtgt	caatgtatat	cattttactg	ggggaccttg	2700
tgcagaactc	gtggtgctgg	gcactgctgc	tgctgcggca	gctggcaacc	tgacttgtat	2760
cgtcgcgatc	ggaaatgaga	acaggggcat	cttgagcccc	tgcggacggt	gccgacaggt	2820
gcttctcgat	ctgcatcctg	ggatcaaagc	catagtgaag	gacagtgatg	gacagccgac	2880
ggcagttggg	attcgtgaat	tgctgccctc	tggttatgtg	tgggagggct	aagcacaatt	2940
cgagctcggt	acctttaaga	ccaatgactt	acaaggcagc	tgtagatctt	agccactttt	3000
taaaagaaaa	ggggggactg	gaagggctaa	ttcactccca	acgaagacaa	gatctgcttt	3060
ttgcttgtac	tgggtctctc	tggttagacc	agatctgagc	ctgggagctc	tctggctaac	3120
tagggaaccc	actgcttaag	cctcaataaa	gcttgccttg	agtgcttcaa	gtagtgtgtg	3180
cccgtctgtt	gtgtgactct	ggtaactaga	gatccctcag	acccttttag	tcagtgtgga	3240
aaatctctag	cagtagtagt	tcatgtcatc	ttattattca	gtatttataa	cttgcaaaga	3300
aatgaatatc	agagagtgag	aggaacttgt	ttattgcagc	ttataatggt	tacaaataaa	3360
gcaatagcat	cacaaatttc	acaaataaag	catttttttc	actgcattct	agttgtggtt	3420
tgtccaaact	catcaatgta	tcttatcatg	tctggctcta	gctatcccgc	ccctaactcc	3480
gcccatcccg	cccctaactc	cgcccagttc	cgcccattct	ccgccccatg	gctgactaat	3540

		USAV2002-01	L87 US PCTse	equence list	ting tyt	
tttttttatt	tatgcagagg	ccgaggccgc				3600
aggaggcttt	tttggaggcc	tagggacgta	cccaattcgc	cctatagtga	gtcgtattac	3660
gcgcgctcac	tggccgtcgt	tttacaacgt	cgtgactggg	aaaaccctgg	cgttacccaa	3720
cttaatcgcc	ttgcagcaca	tcccctttc	gccagctggc	gtaatagcga	agaggcccgc	3780
accgatcgcc	cttcccaaca	gttgcgcagc	ctgaatggcg	aatgggacgc	gccctgtagc	3840
ggcgcattaa	gcgcggcggg	tgtggtggtt	acgcgcagcg	tgaccgctac	acttgccagc	3900
gccctagcgc	ccgctccttt	cgctttcttc	ccttcctttc	tcgccacgtt	cgccggcttt	3960
ccccgtcaag	ctctaaatcg	ggggctccct	ttagggttcc	gatttagtgc	tttacggcac	4020
ctcgacccca	aaaaacttga	ttagggtgat	ggttcacgta	gtgggccatc	gccctgatag	4080
acggttttc	gccctttgac	gttggagtcc	acgttcttta	atagtggact	cttgttccaa	4140
actggaacaa	cactcaaccc	tatctcggtc	tattcttttg	atttataagg	gattttgccg	4200
atttcggcct	attggttaaa	aaatgagctg	atttaacaaa	aatttaacgc	gaattttaac	4260
aaaatattaa	cgcttacaat	ttaggtggca	cttttcgggg	aaatgtgcgc	ggaaccccta	4320
tttgtttatt	tttctaaata	cattcaaata	tgtatccgct	catgagacaa	taaccctgat	4380
aaatgcttca	ataatattga	aaaaggaaga	gtatgagtat	tcaacatttc	cgtgtcgccc	4440
ttattccctt	ttttgcggca	ttttgccttc	ctgtttttgc	tcacccagaa	acgctggtga	4500
aagtaaaaga	tgctgaagat	cagttgggtg	cacgagtggg	ttacatcgaa	ctggatctca	4560
acagcggtaa	gatccttgag	agttttcgcc	ccgaagaacg	ttttccaatg	atgagcactt	4620
ttaaagttct	gctatgtggc	gcggtattat	cccgtattga	cgccgggcaa	gagcaactcg	4680
gtcgccgcat	acactattct	cagaatgact	tggttgagta	ctcaccagtc	acagaaaagc	4740
atcttacgga	tggcatgaca	gtaagagaat	tatgcagtgc	tgccataacc	atgagtgata	4800
acactgcggc	caacttactt	ctgacaacga	tcggaggacc	gaaggagcta	accgcttttt	4860
tgcacaacat	gggggatcat	gtaactcgcc	ttgatcgttg	ggaaccggag	ctgaatgaag	4920
ccataccaaa	cgacgagcgt	gacaccacga	tgcctgtagc	aatggcaaca	acgttgcgca	4980
aactattaac	tggcgaacta	cttactctag	cttcccggca	acaattaata	gactggatgg	5040
aggcggataa	agttgcagga	ccacttctgc	gctcggccct	tccggctggc	tggtttattg	5100
ctgataaatc	tggagccggt	gagcgtgggt	ctcgcggtat	cattgcagca	ctggggccag	5160
atggtaagcc	ctcccgtatc	gtagttatct	acacgacggg	gagtcaggca	actatggatg	5220
aacgaaatag	acagatcgct	gagataggtg	cctcactgat	taagcattgg	taactgtcag	5280
accaagttta	ctcatatata	ctttagattg	atttaaaact	tcatttttaa	tttaaaagga	5340
tctaggtgaa	gatccttttt	gataatctca	tgaccaaaat	cccttaacgt	gagttttcgt	5400
tccactgagc	gtcagacccc	gtagaaaaga	tcaaaggatc Page	ttcttgagat 5	ccttttttc	5460

tgcgcgtaat	ctgctgcttg	caaacaaaaa	aaccaccgct	accagcggtg	gtttgtttgc	5520
cggatcaaga	gctaccaact	ctttttccga	aggtaactgg	cttcagcaga	gcgcagatac	5580
caaatactgt	tcttctagtg	tagccgtagt	taggccacca	cttcaagaac	tctgtagcac	5640
cgcctacata	cctcgctctg	ctaatcctgt	taccagtggc	tgctgccagt	ggcgataagt	5700
cgtgtcttac	cgggttggac	tcaagacgat	agttaccgga	taaggcgcag	cggtcgggct	5760
gaacgggggg	ttcgtgcaca	cagcccagct	tggagcgaac	gacctacacc	gaactgagat	5820
acctacagcg	tgagctatga	gaaagcgcca	cgcttcccga	agggagaaag	gcggacaggt	5880
atccggtaag	cggcagggtc	ggaacaggag	agcgcacgag	ggagcttcca	gggggaaacg	5940
cctggtatct	ttatagtcct	gtcgggtttc	gccacctctg	acttgagcgt	cgatttttgt	6000
gatgctcgtc	aggggggcgg	agcctatgga	aaaacgccag	caacgcggcc	ttttacggt	6060
tcctggcctt	ttgctggcct	tttgctcaca	tgttctttcc	tgcgttatcc	cctgattctg	6120
tggataaccg	tattaccgcc	tttgagtgag	ctgataccgc	tcgccgcagc	cgaacgaccg	6180
agcgcagcga	gtcagtgagc	gaggaagcgg	aagagcgccc	aatacgcaaa	ccgcctctcc	6240
ccgcgcgttg	gccgattcat	taatgcagct	ggcacgacag	gtttcccgac	tggaaagcgg	6300
gcagtgagcg	caacgcaatt	aatgtgagtt	agctcactca	ttaggcaccc	caggctttac	6360
actttatgct	tccggctcgt	atgttgtgtg	gaattgtgag	cggataacaa	tttcacacag	6420
gaaacagcta	tgaccatgat	tacgccaagc	gcgcaattaa	ccctcactaa	agggaacaaa	6480
agctggagct	gcaagctt					6498

<210> 9 <211> 6702

<212> DNA <213> Artificial

<220>

<223> Modified Lentivirus (pLenti-U6-hrGFP)

<400> 9 aatgtagtct tatgcaatac tcttgtagtc ttgcaacatg gtaacgatga gttagcaaca 60 tgccttacaa ggagagaaaa agcaccgtgc atgccgattg gtggaagtaa ggtggtacga 120 180 tcgtgcctta ttaggaaggc aacagacggg tctgacatgg attggacgaa ccactgaatt gccgcattgc agagatattg tatttaagtg cctagctcga tacataaacg ggtctctctg 240 300 gttagaccag atctgagcct gggagctctc tggctaacta gggaacccac tgcttaagcc 360 tcaataaagc ttgccttgag tgcttcaagt agtgtgtgcc cgtctgttgt gtgactctgg 420 taactagaga tccctcagac ccttttagtc agtgtggaaa atctctagca gtggcgcccg 480 aacagggact tgaaagcgaa agggaaacca gaggagctct ctcgacgcag gactcggctt

			107		•	
gctgaagcgc	gcacggcaag	aggcgagggg	cggcgactgg	equence list tgagtacgcc	aaaaattttg	540
actagcggag	gctagaagga	gagagatggg	tgcgagagcg	tcagtattaa	gcgggggaga	600
attagatcgc	gatgggaaaa	aattcggtta	aggccagggg	gaaagaaaaa	atataaatta	660
aaacatatag	tatgggcaag	cagggagcta	gaacgattcg	cagttaatcc	tggcctgtta	720
gaaacatcag	aaggctgtag	acaaatactg	ggacagctac	aaccatccct	tcagacagga	780
tcagaagaac	ttagatcatt	atataataca	gtagcaaccc	tctattgtgt	gcatcaaagg	840
atagagataa	aagacaccaa	ggaagcttta	gacaagatag	aggaagagca	aaacaaagt	900
aagaccaccg	cacagcaagc	ggccgctgat	cttcagacct	ggaggaggag	atatgaggga	960
caattggaga	agtgaattat	ataaatataa	agtagtaaaa	attgaaccat	taggagtagc	1020
acccaccaag	gcaaagagaa	gagtggtgca	gagagaaaaa	agagcagtgg	gaataggagc	1080
tttgttcctt	gggttcttgg	gagcagcagg	aagcactatg	ggcgcagcgt	caatgacgct	1140
gacggtacag	gccagacaat	tattgtctgg	tatagtgcag	cagcagaaca	atttgctgag	1200
ggctattgag	gcgcaacagc	atctgttgca	actcacagtc	tggggcatca	agcagctcca	1260
ggcaagaatc	ctggctgtgg	aaagatacct	aaaggatcaa	cagctcctgg	ggatttgggg	1320
ttgctctgga	aaactcattt	gcaccactgc	tgtgccttgg	aatgctagtt	ggagtaataa	1380
atctctggaa	cagatttgga	atcacacgac	ctggatggag	tgggacagag	aaattaacaa	1440
ttacacaagc	ttaatacact	ccttaattga	agaatcgcaa	aaccagcaag	aaaagaatga	1500
acaagaatta	ttggaattag	ataaatgggc	aagtttgtgg	aattggttta	acataacaaa	1560
ttggctgtgg	tatataaaat	tattcataat	gatagtagga	ggcttggtag	gtttaagaat	1620
agtttttgct	gtactttcta	tagtgaatag	agttaggcag	ggatattcac	cattatcgtt	1680
tcagacccac	ctcccaaccc	cgaggggacc	cgacaggccc	gaaggaatag	aagaagaagg	1740
tggagagaga	gacagagaca	gatccattcg	attagtgaac	ggatctcgac	ggtaatcgat	1800
tttcccatga	ttccttcata	tttgcatata	cgatacaagg	ctgttagaga	gataattaga	1860
attaatttga	ctgtaaacac	aaagatatta	gtacaaaata	cgtgacgtag	aaagtaataa	1920
tttcttgggt	agtttgcagt	ttttaaaatt	atgttttaaa	atggactatc	atatgcttac	1980
cgtaacttga	aagtatttcg	atttcttggc	tttatatatc	ttgtggaaag	gacgaaacac	2040
cgaattcacc	ggtcggttag	taatgagttt	ggaattaatt	ctgtggaatg	tgtgtcagtt	2100
agggtgtgga	aagtccccag	gctccccagg	caggcagaag	tatgcaaagc	atgcatctca	2160
attagtcagc	aaccaggtgt	ggaaagtccc	caggctcccc	agcaggcaga	agtatgcaaa	2220
gcatgcatct	caattagtca	gcaaccatag	tcccgcccct	aactccgccc	atcccgcccc	2280
taactccgcc	cagttccgcc	cattctccgc	cccatggctg	actaatttt	tttatttatg	2340
cagaggccga	ggccgcctct	gcctctgagc	tattccagaa Page	gtagtgagga 7	ggcttttttg	2400

gaggcctagg	cttttgcaaa	aagctcccgg	gatggtgagc	aagcagatcc	tgaagaacac	2460
cggcctgcag	gagatcatga	gcttcaaggt	gaacctggag	ggcgtggtga	acaaccacgt	2520
gttcaccatg	gagggctgcg	gcaagggcaa	catcctgttc	ggcaaccagc	tggtgcagat	2580
ccgcgtgacc	aagggcgccc	ccctgccctt	cgccttcgac	atcctgagcc	ccgccttcca	2640
gtacggcaac	cgcaccttca	ccaagtaccc	cgaggacatc	agcgacttct	tcatccagag	2700
cttccccgcc	ggcttcgtgt	acgagcgcac	cctgcgctac	gaggacggcg	gcctggtgga	2760
gatccgcagc	gacatcaacc	tgatcgagga	gatgttcgtg	taccgcgtgg	agtacaaggg	2820
ccgcaacttc	cccaacgacg	gccccgtgat	gaagaagacc	atcaccggcc	tgcagcccag	2880
cttcgaggtg	gtgtacatga	acgacggcgt	gctggtgggc	caggtgatcc	tggtgtaccg	2940
cctgaacagc	ggcaagttct	acagctgcca	catgcgcacc	ctgatgaaga	gcaagggcgt	3000
ggtgaaggac	ttccccgagt	accacttcat	ccagcaccgc	ctggagaaga	cctacgtgga	3060
ggacggcggc	ttcgtggagc	agcacgagac	cgccatcgcc	cagctgacca	gcctgggcaa	3120
gcccctgggc	agcctgcacg	agtgggtgta	aggtaccttt	aagaccaatg	acttacaagg	3180
cagctgtaga	tcttagccac	tttttaaaag	aaaagggggg	actggaaggg	ctaattcact	3240
cccaacgaag	acaagatctg	ctttttgctt	gtactgggtc	tctctggtta	gaccagatct	3300
gagcctggga	gctctctggc	taactaggga	acccactgct	taagcctcaa	taaagcttgc	3360
cttgagtgct	tcaagtagtg	tgtgcccgtc	tgttgtgtga	ctctggtaac	tagagatccc	3420
tcagaccctt	ttagtcagtg	tggaaaatct	ctagcagtag	tagttcatgt	catcttatta	3480
ttcagtattt	ataacttgca	aagaaatgaa	tatcagagag	tgagaggaac	ttgtttattg	3540
cagcttataa	tggttacaaa	taaagcaata	gcatcacaaa	tttcacaaat	aaagcatttt	3600
tttcactgca	ttctagttgt	ggtttgtcca	aactcatcaa	tgtatcttat	catgtctggc	3660
tctagctatc	ccgcccctaa	ctccgcccat	cccgccccta	actccgccca	gttccgccca	3720
ttctccgccc	catggctgac	taatttttt	tatttatgca	gaggccgagg	ccgcctcggc	3780
ctctgagcta	ttccagaagt	agtgaggagg	cttttttgga	ggcctaggga	cgtacccaat	3840
tcgccctata	gtgagtcgta	ttacgcgcgc	tcactggccg	tcgttttaca	acgtcgtgac	3900
tgggaaaacc	ctggcgttac	ccaacttaat	cgccttgcag	cacatccccc	tttcgccagc	3960
tggcgtaata	gcgaagaggc	ccgcaccgat	cgcccttccc	aacagttgcg	cagcctgaat	4020
ggcgaatggg	acgcgccctg	tagcggcgca	ttaagcgcgg	cgggtgtggt	ggttacgcgc	4080
agcgtgaccg	ctacacttgc	cagcgcccta	gcgcccgctc	ctttcgcttt	cttcccttcc	4140
tttctcgcca	cgttcgccgg	ctttccccgt	caagctctaa	atcgggggct	ccctttaggg	4200
ttccgattta	gtgctttacg	gcacctcgac	cccaaaaaac	ttgattaggg	tgatggttca	4260

	UCAV2002	0107 46 867-			
cgtagtgggc catc	gccctg atagacggt	0187 US PCTse t tttcgccctt			4320
tttaatagtg gact	cttgtt ccaaactgg	a acaacactca	accctatctc	ggtctattct	4380
tttgatttat aagg	gatttt gccgatttc	g gcctattggt	taaaaaatga	gctgatttaa	4440
caaaaattta acgc	gaattt taacaaaat	a ttaacgctta	caatttaggt	ggcacttttc	4500
ggggaaatgt gcgc	ggaacc cctatttgt	t tatttttcta	aatacattca	aatatgtatc	4560
cgctcatgag acaa	taaccc tgataaatg	c ttcaataata	ttgaaaaagg	aagagtatga	4620
gtattcaaca tttc	cgtgtc gcccttatt	c ccttttttgc	ggcattttgc	cttcctgttt	4680
ttgctcaccc agaa	acgctg gtgaaagta	a aagatgctga	agatcagttg	ggtgcacgag	4740
tgggttacat cgaa	ctggat ctcaacagc	g gtaagatcct	tgagagtttt	cgccccgaag	4800
aacgttttcc aatg	atgagc acttttaaa	g ttctgctatg	tggcgcggta	ttatcccgta	4860
ttgacgccgg gcaa	gagcaa ctcggtcgc	c gcatacacta	ttctcagaat	gacttggttg	4920
agtactcacc agtc	acagaa aagcatctt	a cggatggcat	gacagtaaga	gaattatgca	4980
gtgctgccat aacc	atgagt gataacact	g cggccaactt	acttctgaca	acgatcggag	5040
gaccgaagga gcta	accgct tttttgcac	a acatggggga	tcatgtaact	cgccttgatc	5100
gttgggaacc ggag	ctgaat gaagccata	c caaacgacga	gcgtgacacc	acgatgcctg	5160
tagcaatggc aaca	acgttg cgcaaacta	t taactggcga	actacttact	ctagcttccc	5220
ggcaacaatt aata	gactgg atggaggcg	g ataaagttgc	aggaccactt	ctgcgctcgg	5280
cccttccggc tggc	tggttt attgctgat	a aatctggagc	cggtgagcgt	gggtctcgcg	5340
gtatcattgc agca	ctgggg ccagatggt	a agccctcccg	tatcgtagtt	atctacacga	5400
cggggagtca ggca	actatg gatgaacga	a atagacagat	cgctgagata	ggtgcctcac	5460
tgattaagca ttgg	taactg tcagaccaa	g tttactcata	tatactttag	attgatttaa	5520
aacttcattt ttaa	tttaaa aggatctag	g tgaagatcct	ttttgataat	ctcatgacca	5580
aaatccctta acgt	gagttt tcgttccac	t gagcgtcaga	ccccgtagaa	aagatcaaag	5640
gatcttcttg agat	cctttt tttctgcgc	g taatctgctg	cttgcaaaca	aaaaaaccac	5700
cgctaccagc ggtg	gtttgt ttgccggat	c aagagctacc	aactctttt	ccgaaggtaa	5760
ctggcttcag caga	gcgcag ataccaaat	a ctgttcttct	agtgtagccg	tagttaggcc	5820
accacttcaa gaac	tctgta gcaccgcct	a catacctcgc	tctgctaatc	ctgttaccag	5880
tggctgctgc cagt	ggcgat aagtcgtgt	c ttaccgggtt	ggactcaaga	cgatagttac	5940
cggataaggc gcag	cggtcg ggctgaacg	g ggggttcgtg	cacacagccc	agcttggagc	6000
gaacgaccta cacc	gaactg agataccta	c agcgtgagct	atgagaaagc	gccacgcttc	6060
ccgaagggag aaag	gcggac aggtatccg	g taagcggcag	ggtcggaaca	ggagagcgca	6120
cgagggagct tcca	nggggga aacgcctgg	t atctttatag Page	tcctgtcggg 9	tttcgccacc	6180

#### USAV2002-0187 US PCTsequence listing.txt 6240 tctgacttga gcgtcgattt ttgtgatgct cgtcaggggg gcggagccta tggaaaaacg 6300 ccagcaacgc ggccttttta cggttcctgg ccttttgctg gccttttgct cacatgttct ttcctgcgtt atcccctgat tctgtggata accgtattac cgcctttgag tgagctgata 6360 6420 ccgctcgccg cagccgaacg accgagcgca gcgagtcagt gagcgaggaa gcggaagagc 6480 gcccaatacg caaaccgcct ctccccgcgc gttggccgat tcattaatgc agctggcacg acaggtttcc cgactggaaa gcgggcagtg agcgcaacgc aattaatgtg agttagctca 6540 6600 ctcattaggc accccaggct ttacacttta tgcttccggc tcgtatgttg tgtggaattg 6660 tgagcggata acaatttcac acaggaaaca gctatgacca tgattacgcc aagcgcgcaa 6702 ttaaccctca ctaaagggaa caaaagctgg agctgcaagc tt <210> 10 7244 DNA Artificial <220> <223> MSCV vector (MSCV-U6-Hygro) <400> 10 60 tgaaagaccc cacctgtagg tttggcaagc tagcttaagt aacgccattt tgcaaggcat 120 ggaaaataca taactgagaa tagagaagtt cagatcaagg ttaggaacag agagacagca gaatatgggc caaacaggat atctgtggta agcagttcct gccccggctc agggccaaga 180 240 acagatggtc cccagatgcg gtcccgccct cagcagtttc tagagaacca tcagatgttt 300 ccagggtgcc ccaaggacct gaaatgaccc tgtgccttat ttgaactaac caatcagttc 360 gcttctcgct tctgttcgcg cgcttctgct ccccgagctc aataaaagag cccacaaccc ctcactcggc gcgccagtcc tccgatagac tgcgtcgccc gggtacccgt attcccaata 420 480 aagcctcttg ctgtttgcat ccgaatcgtg gactcgctga tccttgggag ggtctcctca 540 gattgattga ctgcccacct cgggggtctt tcatttggag gttccaccga gatttggaga cccctgccca gggaccaccg accccccgc cgggaggtaa gctggccagc ggtcgtttcg 600 660 tgtctgtctc tgtctttgtg cgtgtttgtg ccggcatcta atgtttgcgc ctgcgtctgt 720 actagttagc taactagctc tgtatctggc ggacccgtgg tggaactgac gagttctgaa 780 cacceggeeg caaccetggg agacgteeca gggaetttgg gggeegtttt tgtggeecga

cctgaggaag ggagtcgatg tggaatccga ccccgtcagg atatgtggtt ctggtaggag

acgagaacct aaaacagttc ccgcctccgt ctgaattttt gctttcggtt tggaaccgaa gccgcgcgtc ttgtctgctg cagcgctgca gcatcgttct gtgttgtctc tgtctgactg

tgtttctgta tttgtctgaa aattagggcc agactgttac cactccctta agtttgacct

840

900

960

1020

		HEAV/2002 0	197 US DCT6	nguanca lic	ting tyt	
taggtcactg	gaaagatgtc	gagcggatcg	187 US PCTse ctcacaacca			1080
gacgttgggt	taccttctgc	tctgcagaat	ggccaacctt	taacgtcgga	tggccgcgag	1140
acggcacctt	taaccgagac	ctcatcaccc	aggttaagat	caaggtcttt	tcacctggcc	1200
cgcatggaca	cccagaccag	gtcccctaca	tcgtgacctg	ggaagccttg	gcttttgacc	1260
cccctccctg	ggtcaagccc	tttgtacacc	ctaagcctcc	gcctcctctt	cctccatccg	1320
ccccgtctct	cccccttgaa	cctcctcgtt	cgaccccgcc	tcgtatcctc	cctttatcca	1380
gccctcactc	cttctctagg	cgccggaatt	agatctttcc	catgattcct	tcatatttgc	1440
atatacgata	caaggctgtt	agagagataa	ttagaattaa	tttgactgta	aacacaaaga	1500
tattagtaca	aaatacgtga	cgtagaaagt	aataatttct	tgggtagttt	gcagttttta	1560
aaattatgtt	ttaaaatgga	ctatcatatg	cttaccgtaa	cttgaaagta	tttcgatttc	1620
ttggctttat	atatcttgtg	gaaaggacga	aacacctctg	aggttaacgg	atccgcggcc	1680
gcacgcgtgt	taacgaattc	taccgggtag	gggaggcgct	tttcccaagg	cagtctggag	1740
catgcgcttt	agcagccccg	ctgggcactt	ggcgctacac	aagtggcctc	tggcctcgca	1800
cacattccac	atccaccggt	aggcgccaac	cggctccgtt	ctttggtggc	cccttcgcgc	1860
caccttctac	tcctccccta	gtcaggaagt	tccccccgc	cccgcagctc	gcgtcgtgca	1920
ggacgtgaca	aatggaagta	gcacgtctca	ctagtctcgt	gcagatggac	agcaccgctg	1980
agcaatggaa	gcgggtaggc	ctttggggca	gcggccaata	gcagctttgc	tccttcgctt	2040
tctgggctca	gaggctggga	aggggtgggt	ccgggggcgg	gctcaggggc	gggctcaggg	2100
gcggggcggg	cgcccgaagg	tcctccggag	gcccggcatt	ctgcacgctt	caaaagcgca	2160
cgtctgccgc	gctgttctcc	tcttcctcat	ctccgggcct	ttcgacctgc	atcccgccac	2220
catgaaaaag	cctgaactca	ccgcgacgtc	tgtcgagaag	tttctgatcg	aaaagttcga	2280
cagcgtctcc	gacctgatgc	agctctcgga	gggcgaagaa	tctcgtgctt	tcagcttcga	2340
tgtaggaggg	cgtggatatg	tcctgcgggt	aaatagctgc	gccgatggtt	tctacaaaga	2400
tcgttatgtt	tatcggcact	ttgcatcggc	cgcgctcccg	attccggaag	tgcttgacat	2460
tggggaattc	agcgagagcc	tgacctattg	catctcccgc	cgtgcacagg	gtgtcacgtt	2520
gcaagacctg	cctgaaaccg	aactgcccgc	tgttctgcag	ccggtcgcgg	aggccatgga	2580
tgcgatcgct	gcggccgatc	ttagccagac	gagcgggttc	ggcccattcg	gaccgcaagg	2640
aatcggtcaa	tacactacat	ggcgtgattt	catatgcgcg	attgctgatc	cccatgtgta	2700
tcactggcaa	actgtgatgg	acgacaccgt	cagtgcgtcc	gtcgcgcagg	ctctcgatga	2760
gctgatgctt	tgggccgagg	actgccccga	agtccggcac	ctcgtgcacg	cggatttcgg	2820
ctccaacaat	gtcctgacgg	acaatggccg	cataacagcg	gtcattgact	ggagcgaggc	2880
gatgttcggg	gattcccaat	acgaggtcgc	caacatcttc Page		cgtggttggc	2940

ttgtatggag	cagcagacgc	gctacttcga	gcggaggcat	ccggagcttg	caggatcgcc	3000
gcggctccgg	ggcgtatatg	ctccgcattg	gtcttgacca	actctatcag	agcttggttg	3060
acggcaattt	cgatgatgca	gcttgggcgc	agggtcgatg	cgacgcaatc	gtccgatccg	3120
gagccgggac	tgtcgggcgt	acacaaatcg	cccgcagaag	cgcggccgtc	tggaccgatg	3180
gctgtgtaga	agtactcgcc	gatagtggaa	accgacgccc	cagcactcgt	ccgagggcaa	3240
aggaatagag	tagatgccga	ccgaacaaga	gctgatttcg	agaacgcctc	agccagcaac	3300
tcgcgcgagc	ctagcaaggc	aaatgcgaga	gaacggcctt	acgcttggtg	gcacagttct	3360
cgtccacagt	tcgctaagct	cgctcggctg	ggtcgcggga	gggccggtcg	cagtgattca	3420
ggcccttctg	gattgtgttg	gtccccaggg	cacgattgtc	atgcccacgc	actcgggtga	3480
tctgactgat	cccgcagatt	ggagatcgcc	gcccgtgcct	gccgattggg	tgcagatccg	3540
tcgacctgca	gccaagctta	tcgataaaat	aaaagatttt	atttagtctc	cagaaaaagg	3600
ggggaatgaa	agaccccacc	tgtaggtttg	gcaagctagc	ttaagtaacg	ccattttgca	3660
aggcatggaa	aatacataac	tgagaataga	gaagttcaga	tcaaggttag	gaacagagag	3720
acagcagaat	atgggccaaa	caggatatct	gtggtaagca	gttcctgccc	cggctcaggg	3780
ccaagaacag	atggtcccca	gatgcggtcc	cgccctcagc	agtttctaga	gaaccatcag	3840
atgtttccag	ggtgccccaa	ggacctgaaa	tgaccctgtg	ccttatttga	actaaccaat	3900
cagttcgctt	ctcgcttctg	ttcgcgcgct	tctgctcccc	gagctcaata	aaagagccca	3960
caacccctca	ctcggcgcgc	cagtcctccg	atagactgcg	tcgcccgggt	acccgtgtat	4020
ccaataaacc	ctcttgcagt	tgcatccgac	ttgtggtctc	gctgttcctt	gggagggtct	4080
cctctgagtg	attgactacc	cgtcagcggg	ggtctttcat	gggtaacagt	ttcttgaagt	4140
tggagaacaa	cattctgagg	gtaggagtcg	aatattaagt	aatcctgact	caattagcca	4200
ctgttttgaa	tccacatact	ccaatactcc	tgaaatagtt	cattatggac	agcgcagaag	4260
agctggggag	aattaattcg	taatcatggt	catagctgtt	tcctgtgtga	aattgttatc	4320
cgctcacaat	tccacacaac	atacgagccg	gaagcataaa	gtgtaaagcc	tggggtgcct	4380
aatgagtgag	ctaactcaca	ttaattgcgt	tgcgctcact	gcccgctttc	cagtcgggaa	4440
acctgtcgtg	ccagctgcat	taatgaatcg	gccaacgcgc	ggggagaggc	ggtttgcgta	4500
ttgggcgctc	ttccgcttcc	tcgctcactg	actcgctgcg	ctcggtcgtt	cggctgcggc	4560
gagcggtatc	agctcactca	aaggcggtaa	tacggttatc	cacagaatca	ggggataacg	4620
caggaaagaa	catgtgagca	aaaggccagc	aaaaggccag	gaaccgtaaa	aaggccgcgt	4680
tgctggcgtt	tttccatagg	ctccgccccc	ctgacgagca	tcacaaaaat	cgacgctcaa	4740
gtcagaggtg	gcgaaacccg	acaggactat	aaagatacca	ggcgtttccc	cctggaagct	4800

ccctcgtgcg	ctctcctgtt	USAV2002-01 ccgaccctgc	l87 US PCTse cgcttaccgg	equence list atacctgtcc	ting.txt gcctttctcc	4860
cttcgggaag	cgtggcgctt	tctcatagct	cacgctgtag	gtatctcagt	tcggtgtagg	4920
tcgttcgctc	caagctgggc	tgtgtgcacg	aacccccgt	tcagcccgac	cgctgcgcct	4980
tatccggtaa	ctatcgtctt	gagtccaacc	cggtaagaca	cgacttatcg	ccactggcag	5040
cagccactgg	taacaggatt	agcagagcga	ggtatgtagg	cggtgctaca	gagttcttga	5100
agtggtggcc	taactacggc	tacactagaa	ggacagtatt	tggtatctgc	gctctgctga	5160
agccagttac	cttcggaaaa	agagttggta	gctcttgatc	cggcaaacaa	accaccgctg	5220
gtagcggtgg	tttttttgtt	tgcaagcagc	agattacgcg	cagaaaaaaa	ggatctcaag	5280
aagatccttt	gatcttttct	acggggtctg	acgctcagtg	gaacgaaaac	tcacgttaag	5340
ggattttggt	catgagatta	tcaaaaagga	tcttcaccta	gatcctttta	aattaaaaat	5400
gaagttttaa	atcaatctaa	agtatatatg	agtaaacttg	gtctgacagt	taccaatgct	5460
taatcagtga	ggcacctatc	tcagcgatct	gtctatttcg	ttcatccata	gttgcctgac	5520
tccccgtcgt	gtagataact	acgatacggg	agggcttacc	atctggcccc	agtgctgcaa	5580
tgataccgcg	agacccacgc	tcaccggctc	cagatttatc	agcaataaac	cagccagccg	5640
gaagggccga	gcgcagaagt	ggtcctgcaa	ctttatccgc	ctccatccag	tctattaatt	5700
gttgccggga	agctagagta	agtagttcgc	cagttaatag	tttgcgcaac	gttgttgcca	5760 .
ttgctacagg	catcgtggtg	tcacgctcgt	cgtttggtat	ggcttcattc	agctccggtt	5820
cccaacgatc	aaggcgagtt	acatgatccc	ccatgttgtg	caaaaaagcg	gttagctcct	5880
tcggtcctcc	gatcgttgtc	agaagtaagt	tggccgcagt	gttatcactc	atggttatgg	5940
cagcactgca	taattctctt	actgtcatgc	catccgtaag	atgcttttct	gtgactggtg	6000
agtactcaac	caagtcattc	tgagaatagt	gtatgcggcg	accgagttgc	tcttgcccgg	6060
cgtcaatacg	ggataatacc	gcgccacata	gcagaacttt	aaaagtgctc	atcattggaa	6120
aacgttcttc	ggggcgaaaa	ctctcaagga	tcttaccgct	gttgagatcc	agttcgatgt	6180
aacccactcg	tgcacccaac	tgatcttcag	catcttttac	tttcaccagc	gtttctgggt	6240
gagcaaaaac	aggaaggcaa	aatgccgcaa	aaaagggaat	aagggcgaca	cggaaatgtt	6300
gaatactcat	actcttcctt	tttcaatatt	attgaagcat	ttatcagggt	tattgtctca	6360
tgagcggata	catatttgaa	tgtatttaga	aaaataaaca	aataggggtt	ccgcgcacat	6420
ttccccgaaa	agtgccacct	gacgtctaag	aaaccattat	tatcatgaca	ttaacctata	6480
aaaataggcg	tatcacgagg	ccctttcgtc	tcgcgcgttt	cggtgatgac	ggtgaaaacc	6540
tctgacacat	gcagctcccg	gagacggtca	cagcttgtct	gtaagcggat	gccgggagca	6600
gacaagcccg	tcagggcgcg	tcagcgggtg	ttggcgggtg	tcggggctgg	cttaactatg	6660
cggcatcaga	gcagattgta	ctgagagtgc	accatatgcg Page	gtgtgaaata 13	ccgcacagat	6720

#### USAV2002-0187 US PCTsequence listing.txt gcgtaaggag aaaataccgc atcaggcgcc attcgccatt caggctgcgc aactgttggg 6780 6840 aagggcgatc ggtgcgggcc tcttcgctat tacgccagct ggcgaaaggg ggatgtgctg 6900 caaggcgatt aagttgggta acgccagggt tttcccagtc acgacgttgt aaaacgacgg 6960 cgcaaggaat ggtgcatgca aggagatggc gcccaacagt cccccggcca cggggcctgc 7020 caccataccc acgccgaaac aagcgctcat gagcccgaag tggcgagccc gatcttcccc 7080 atcggtgatg tcggcgatat aggcgccagc aaccgcacct gtggcgccgg tgatgccggc cacgatgcgt ccggcgtaga ggcgattagt ccaatttgtt aaagacagga tatcagtggt 7140 7200 ccaggctcta gttttgactc aacaatatca ccagctgaag cctatagagt acgagccata 7244 gataaaataa aagattttat ttagtctcca gaaaaagggg ggaa <210> 11 6561 DNA Artificial <220> <223> MSCV Vector (MSCV-U6-Puro) <400> 11 60 tgaaagaccc cacctgtagg tttggcaagc tagcttaagt aacgccattt tgcaaggcat 120 ggaaaataca taactgagaa tagagaagtt cagatcaagg ttaggaacag agagacagca 180 gaatatgggc caaacaggat atctgtggta agcagttcct gccccggctc agggccaaga 240 acagatggtc cccagatgcg gtcccgccct cagcagtttc tagagaacca tcagatgttt 300 ccagggtgcc ccaaggacct gaaatgaccc tgtgccttat ttgaactaac caatcagttc 360 gcttctcgct tctgttcgcg cgcttctgct ccccgagctc aataaaagag cccacaaccc 420 ctcactcggc gcgccagtcc tccgatagac tgcgtcgccc gggtacccgt attcccaata 480 aagcctcttg ctgtttgcat ccgaatcgtg gactcgctga tccttgggag ggtctcctca 540 gattgattga ctgcccacct cgggggtctt tcatttggag gttccaccga gatttggaga cccctgccca gggaccaccg accccccgc cgggaggtaa gctggccagc ggtcgtttcg 600 660 tgtctgtctc tgtctttgtg cgtgtttgtg ccggcatcta atgtttgcgc ctgcgtctgt 720 actagttagc taactagctc tgtatctggc ggacccgtgg tggaactgac gagttctgaa caccoggccg caaccotggg agacgtccca gggactttgg gggccgtttt tgtggcccga 780 cctgaggaag ggagtcgatg tggaatccga ccccgtcagg atatgtggtt ctggtaggag 840

900 960

1020

acgagaacct aaaacagttc ccgcctccgt ctgaattttt gctttcggtt tggaaccgaa

gccgcgcgtc ttgtctgctg cagcgctgca gcatcgttct gtgttgtctc tgtctgactg tgtttctgta tttgtctgaa aattagggcc agactgttac cactccctta agtttgacct

			107 40 55			
taggtcactg	gaaagatgtc	gagcggatcg	ctcacaacca	equence list gtcggtagat	gtcaagaaga	1080
gacgttgggt	taccttctgc	tctgcagaat	ggccaacctt	taacgtcgga	tggccgcgag	1140
acggcacctt	taaccgagac	ctcatcaccc	aggttaagat	caaggtcttt	tcacctggcc	1200
cgcatggaca	cccagaccag	gtcccctaca	tcgtgacctg	ggaagccttg	gcttttgacc	1260
cccctccctg	ggtcaagccc	tttgtacacc	ctaagcctcc	gcctcctctt	cctccatccg	1320
ccccgtctct	ccccttgaa	cctcctcgtt	cgaccccgcc	tcgatcctcc	ctttatccag	1380
ccctcactcc	ttctctaggc	gccggaatta	gatctttccc	atgattcctt	catatttgca	1440
tatacgatac	aaggctgtta	gagagataat	tagaattaat	ttgactgtaa	acacaaagat	1500
attagtacaa	aatacgtgac	gtagaaagta	ataatttctt	gggtagtttg	cagtttttaa	1560
aattatgttt	taaaatggac	tatcatatgc	ttaccgtaac	ttgaaagtat	ttcgatttct	1620
tggctttata	tatcttgtgg	aaaggacgaa	acacctctga	ggttaacgga	tccgcggccg	1680
cacgcgtgtt	aacgaattct	accgggtagg	ggaggcgctt	ttcccaaggc	agtctggagc	1740
atgcgcttta	gcagccccgc	tgggcacttg	gcgctacaca	agtggcctct	ggcctcgcac	1800
acattccaca	tccaccggta	ggcgccaacc	ggctccgttc	tttggtggcc	ccttcgcgcc	1860
accttctact	cctcccctag	tcaggaagtt	ccccccgcc	ccgcagctcg	cgtcgtgcag	1920
gacgtgacaa	atggaagtag	cacgtctcac	tagtctcgtg	cagatggaca	gcaccgctga	1980
gcaatggaag	cgggtaggcc	tttggggcag	cggccaatag	cagctttgct	ccttcgcttt	2040
ctgggctcag	aggctgggaa	ggggtgggtc	cgggggcggg	ctcaggggcg	ggctcagggg	2100
cggggcgggc	gcccgaaggt	cctccggagg	cccggcattc	tgcacgcttc	aaaagcgcac	2160
gtctgccgcg	ctgttctcct	cttcctcatc	tccgggcctt	tcgacctgca	gcccaagctt	2220
accatgaccg	agtacaagcc	cacggtgcgc	ctcgccaccc	gcgacgacgt	ccccagggcc	2280
gtacgcaccc	tcgccgccgc	gttcgccgac	taccccgcca	cgcgccacac	cgtcgatccg	2340
gaccgccaca	tcgagcgggt	caccgagctg	caagaactct	tcctcacgcg	cgtcgggctc	2400
gacatcggca	aggtgtgggt	cgcggacgac	ggcgccgcgg	tggcggtctg	gaccacgccg	2460
gagagcgtcg	aagcgggggc	ggtgttcgcc	gagatcggcc	cgcgcatggc	cgagttgagc	2520
ggttcccggc	tggccgcgca	gcaacagatg	gaaggcctcc	tggcgccgca	ccggcccaag	2580
gagcccgcgt	ggttcctggc	caccgtcggc	gtctcgcccg	accaccaggg	caagggtctg	2640
ggcagcgccg	tcgtgctccc	cggagtggag	gcggccgagc	gcgccggggt	gcccgccttc	2700
ctggagacct	ccgcgccccg	caacctcccc	ttctacgagc	ggctcggctt	caccgtcacc	2760
gccgacgtcg	aggtgcccga	aggaccgcgc	acctggtgca	tgacccgcaa	gcccggtgcc	2820
tgacgcccgc	cccacgaccc	gcagcgcccg	accgaaagga	gcgcacgacc	ccatgcatcg	2880
ataaaataaa	agattttatt	tagtctccag	aaaaaggggg Page	gaatgaaaga 15	ccccacctgt	2940

.

aggtttggca	agctagctta	agtaacgcca	ttttgcaagg	catggaaaat	acataactga	3000
gaatagagaa	gttcagatca	aggttaggaa	cagagagaca	gcagaatatg	ggccaaacag	3060
gatatctgtg	gtaagcagtt	cctgccccgg	ctcagggcca	agaacagatg	gtccccagat	3120
gcggtcccgc	cctcagcagt	ttctagagaa	ccatcagatg	tttccagggt	gccccaagga	3180
cctgaaatga	ccctgtgcct	tatttgaact	aaccaatcag	ttcgcttctc	gcttctgttc	3240
gcgcgcttct	gctccccgag	ctcaataaaa	gagcccacaa	cccctcactc	ggcgcgccag	3300
tcctccgata	gactgcgtcg	cccgggtacc	cgtgtatcca	ataaaccctc	ttgcagttgc	3360
atccgacttg	tggtctcgct	gttccttggg	agggtctcct	ctgagtgatt	gactacccgt	3420
cagcgggggt	ctttcatggg	taacagtttc	ttgaagttgg	agaacaacat	tctgagggta	3480
ggagtcgaat	attaagtaat	cctgactcaa	ttagccactg	ttttgaatcc	acatactcca	3540
atactcctga	aatagttcat	tatggacagc	gcagaagagc	tggggagaat	taattcgtaa	3600
tcatggtcat	agctgtttcc	tgtgtgaaat	tgttatccgc	tcacaattcc	acacaacata	3660
cgagccggaa	gcataaagtg	taaagcctgg	ggtgcctaat	gagtgagcta	actcacatta	3720
attgcgttgc	gctcactgcc	cgctttccag	tcgggaaacc	tgtcgtgcca	gctgcattaa	3780
tgaatcggcc	aacgcgcggg	gagaggcggt	ttgcgtattg	ggcgctcttc	cgcttcctcg	3840
ctcactgact	cgctgcgctc	ggtcgttcgg	ctgcggcgag	cggtatcagc	tcactcaaag	3900
gcggtaatac	ggttatccac	agaatcaggg	gataacgcag	gaaagaacat	gtgagcaaaa	3960
ggccagcaaa	aggccaggaa	ccgtaaaaag	gccgcgttgc	tggcgttttt	ccataggctc	4020
cgccccctg	acgagcatca	caaaaatcga	cgctcaagtc	agaggtggcg	aaacccgaca	4080
ggactataaa	gataccaggc	gtttcccct	ggaagctccc	tcgtgcgctc	tcctgttccg	4140
accctgccgc	ttaccggata	cctgtccgcc	tttctccctt	cgggaagcgt	ggcgctttct	4200
catagctcac	gctgtaggta	tctcagttcg	gtgtaggtcg	ttcgctccaa	gctgggctgt	4260
gtgcacgaac	ccccgttca	gcccgaccgc	tgcgccttat	ccggtaacta	tcgtcttgag	4320
tccaacccgg	taagacacga	cttatcgcca	ctggcagcag	ccactggtaa	caggattagc	4380
agagcgaggt	atgtaggcgg	tgctacagag	ttcttgaagt	ggtggcctaa	ctacggctac	4440
actagaagga	cagtatttgg	tatctgcgct	ctgctgaagc	cagttacctt	cggaaaaaga	4500
gttggtagct	cttgatccgg	caaacaaacc	accgctggta	gcggtggttt	ttttgtttgc	4560
aagcagcaga	ttacgcgcag	aaaaaaagga	tctcaagaag	atcctttgat	cttttctacg	4620
gggtctgacg	ctcagtggaa	cgaaaactca	cgttaaggga	ttttggtcat	gagattatca	4680
aaaaggatct	tcacctagat	ccttttaaat	taaaaatgaa	gttttaaatc	aatctaaagt	4740
atatatgagt	aaacttggtc	tgacagttac	caatgcttaa	tcagtgaggc	acctatctca	4800

gcgatctgtc	tatttcgttc	USAV2002-01 atccatagtt				4860
atacgggagg	gcttaccatc	tggccccagt	gctgcaatga	taccgcgaga	cccacgctca	4920
ccggctccag	atttatcagc	aataaaccag	ccagccggaa	gggccgagcg	cagaagtggt	4980
cctgcaactt	tatccgcctc	catccagtct	attaattgtt	gccgggaagc	tagagtaagt	5040
agttcgccag	ttaatagttt	gcgcaacgtt	gttgccattg	ctacaggcat	cgtggtgtca	5100
cgctcgtcgt	ttggtatggc	ttcattcagc	tccggttccc	aacgatcaag	gcgagttaca	5160
tgatccccca	tgttgtgcaa	aaaagcggtt	agctccttcg	gtcctccgat	cgttgtcaga	5220
agtaagttgg	ccgcagtgtt	atcactcatg	gttatggcag	cactgcataa	ttctcttact	5280
gtcatgccat	ccgtaagatg	cttttctgtg	actggtgagt	actcaaccaa	gtcattctga	5340
gaatagtgta	tgcggcgacc	gagttgctct	tgcccggcgt	caatacggga	taataccgcg	5400
ccacatagca	gaactttaaa	agtgctcatc	attggaaaac	gttcttcggg	gcgaaaactc	5460
tcaaggatct	taccgctgtt	gagatccagt	tcgatgtaac	ccactcgtgc	acccaactga	5520
tcttcagcat	cttttacttt	caccagcgtt	tctgggtgag	caaaaacagg	aaggcaaaat	5580
gccgcaaaaa	agggaataag	ggcgacacgg	aaatgttgaa	tactcatact	cttccttttt	5640
caatattatt	gaagcattta	tcagggttat	tgtctcatga	gcggatacat	atttgaatgt	5700
atttagaaaa	ataaacaaat	aggggttccg	cgcacatttc	cccgaaaagt	gccacctgac	5760
gtctaagaaa	ccattattat	catgacatta	acctataaaa	ataggcgtat	cacgaggccc	5820
tttcgtctcg	cgcgtttcgg	tgatgacggt	gaaaacctct	gacacatgca	gctcccggag	5880
acggtcacag	cttgtctgta	agcggatgcc	gggagcagac	aagcccgtca	gggcgcgtca	5940
gcgggtgttg	gcgggtgtcg	gggctggctt	aactatgcgg	catcagagca	gattgtactg	6000
agagtgcacc	atatgcggtg	tgaaataccg	cacagatgcg	taaggagaaa	ataccgcatc	6060
aggcgccatt	cgccattcag	gctgcgcaac	tgttgggaag	ggcgatcggt	gcgggcctct	6120
tcgctattac	gccagctggc	gaaaggggga	tgtgctgcaa	ggcgattaag	ttgggtaacg	6180
ccagggtttt	cccagtcacg	acgttgtaaa	acgacggcgc	aaggaatggt	gcatgcaagg	6240
agatggcgcc	caacagtccc	ccggccacgg	ggcctgccac	catacccacg	ccgaaacaag	6300
cgctcatgag	cccgaagtgg	cgagcccgat	cttccccatc	ggtgatgtcg	gcgatatagg	6360
cgccagcaac	cgcacctgtg	gcgccggtga	tgccggccac	gatgcgtccg	gcgtagaggc	6420
gattagtcca	atttgttaaa	gacaggatat	cagtggtcca	ggctctagtt	ttgactcaac	6480
aatatcacca	gctgaagcct	atagagtacg	agccatagat	aaaataaaag	attttattta	6540
gtctccagaa	aaagggggga	a				6561

USAV2002-0187 US PCTsequence listing.txt <212> DNA <213> Artificial <220> <223> MSCV Vector (MSCV-U6-hrGFP) <400> 12 tgaaagaccc cacctgtagg tttggcaagc tagcttaagt aacgccattt tgcaaggcat ggaaaataca taactgagaa tagagaagtt cagatcaagg ttaggaacag agagacagca gaatatgggc caaacaggat atctgtggta agcagttcct gccccggctc agggccaaga acagatggtc cccagatgcg gtcccgccct cagcagtttc tagagaacca tcagatgttt ccagggtgcc ccaaggacct gaaatgaccc tgtgccttat ttgaactaac caatcagttc gcttctcgct tctgttcgcg cgcttctgct ccccgagctc aataaaagag cccacaaccc ctcactcggc gcgccagtcc tccgatagac tgcgtcgccc gggtacccgt attcccaata aagcctcttg ctgtttgcat ccgaatcgtg gactcgctga tccttgggag ggtctcctca gattgattga ctgcccacct cgggggtctt tcatttggag gttccaccga gatttggaga cccctgccca gggaccaccg accccccgc cgggaggtaa gctggccagc ggtcgtttcg tgtctgtctc tgtctttgtg cgtgtttgtg ccggcatcta atgtttgcgc ctgcgtctgt actagttagc taactagctc tgtatctggc ggacccgtgg tggaactgac gagttctgaa

60

120 180

240

300

1680

360 420 480 540 600 660 720 780 cacceggeeg caaccetggg agacgteeca gggaetttgg gggeegtttt tgtggeecga cctgaggaag ggagtcgatg tggaatccga ccccgtcagg atatgtggtt ctggtaggag 840 900 acqaqaacct aaaacagttc ccgcctccgt ctgaattttt gctttcggtt tggaaccgaa gccgcgcgtc ttgtctgctg cagcgctgca gcatcgttct gtgttgtctc tgtctgactg 960 1020 tgtttctgta tttgtctgaa aattagggcc agactgttac cactccctta agtttgacct 1080 taggtcactg gaaagatgtc gagcggatcg ctcacaacca gtcggtagat gtcaagaaga 1140 gacgttgggt taccttctgc tctgcagaat ggccaacctt taacgtcgga tggccgcgag 1200 acggcacctt taaccgagac ctcatcaccc aggttaagat caaggtcttt tcacctggcc 1260 cgcatggaca cccagaccag gtcccctaca tcgtgacctg ggaagccttg gcttttgacc cccctcctg ggtcaagccc tttgtacacc ctaagcctcc gcctcctctt cctccatccg 1320 ccccgtctct cccccttgaa cctcctcgtt cgaccccgcc tcgtatcctc cctttatcca 1380 1440 gccctcactc cttctctagg cgccggaatt agatctttcc catgattcct tcatatttgc 1500

atatacgata caaggctgtt agagagataa ttagaattaa tttgactgta aacacaaaga 1500 tattagtaca aaatacgtga cgtagaaagt aataatttct tgggtagttt gcagttttta 1560 aaattatgtt ttaaaatgga ctatcatatg cttaccgtaa cttgaaagta tttcgatttc 1620

ttggctttat atatcttgtg gaaaggacga aacacctctg aggttaacgg atccgcggcc

gcacgcgtct	gtggaatgtg	USAV2002-01 tgtcagttag		equence list gtccccaggc		1740
ggcagaagta	tgcaaagcat	gcatctcaat	tagtcagcaa	ccaggtgtgg	aaagtcccca	1800
ggctccccag	caggcagaag	tatgcaaagc	atgcatctca	attagtcagc	aaccatagtc	1860
ccgcccctaa	ctccgcccat	cccgccccta	actccgccca	gttccgccca	ttctccgccc	1920
catggctgac	taatttttt	tatttatgca	gaggccgagg	ccgcctctgc	ctctgagcta	1980
ttccagaagt	agtgaggagg	cttttttgga	ggcctaggct	tttgcaaaaa	gctcccggga	2040
tggtgagcaa	gcagatcctg	aagaacaccg	gcctgcagga	gatcatgagc	ttcaaggtga	2100
acctggaggg	cgtggtgaac	aaccacgtgt	tcaccatgga	gggctgcggc	aagggcaaca	2160
tcctgttcgg	caaccagctg	gtgcagatcc	gcgtgaccaa	gggcgccccc	ctgcccttcg	2220
ccttcgacat	cctgagcccc	gccttccagt	acggcaaccg	caccttcacc	aagtaccccg	2280
aggacatcag	cgacttcttc	atccagagct	tccccgccgg	cttcgtgtac	gagcgcaccc	2340
tgcgctacga	ggacggcggc	ctggtggaga	tccgcagcga	catcaacctg	atcgaggaga	2400
tgttcgtgta	ccgcgtggag	tacaagggcc	gcaacttccc	caacgacggc	cccgtgatga	2460
agaagaccat	caccggcctg	cagcccagct	tcgaggtggt	gtacatgaac	gacggcgtgc	2520
tggtgggcca	ggtgatcctg	gtgtaccgcc	tgaacagcgg	caagttctac	agctgccaca	2580
tgcgcaccct	gatgaagagc	aagggcgtgg	tgaaggactt	ccccgagtac	cacttcatcc	2640
agcaccgcct	ggagaagacc	tacgtggagg	acggcggctt	cgtggagcag	cacgagaccg	2700
ccatcgccca	gctgaccagc	ctgggcaagc	ccctgggcag	cctgcacgag	tgggtgtaag	2760
tcgacctgca	gccaagctta	tcgataaaat	aaaagatttt	atttagtctc	cagaaaaagg	2820
ggggaatgaa	agaccccacc	tgtaggtttg	gcaagctagc	ttaagtaacg	ccattttgca	2880
aggcatggaa	aatacataac	tgagaataga	gaagttcaga	tcaaggttag	gaacagagag	2940
acagcagaat	atgggccaaa	caggatatct	gtggtaagca	gttcctgccc	cggctcaggg	3000
ccaagaacag	atggtcccca	gatgcggtcc	cgccctcagc	agtttctaga	gaaccatcag	3060
atgtttccag	ggtgccccaa	ggacctgaaa	tgaccctgtg	ccttatttga	actaaccaat	3120
cagttcgctt	ctcgcttctg	ttcgcgcgct	tctgctcccc	gagctcaata	aaagagccca	3180
caacccctca	ctcggcgcgc	cagtcctccg	atagactgcg	tcgcccgggt	acccgtgtat	3240
ccaataaacc	ctcttgcagt	tgcatccgac	ttgtggtctc	gctgttcctt	gggagggtct	3300
cctctgagtg	attgactacc	cgtcagcggg	ggtctttcat	gggtaacagt	ttcttgaagt	3360
tggagaacaa	cattctgagg	gtaggagtcg	aatattaagt	aatcctgact	caattagcca	3420
ctgttttgaa	tccacatact	ccaatactcc	tgaaatagtt	cattatggac	agcgcagaag	3480
agctggggag	aattaattcg	taatcatggt	catagctgtt	tcctgtgtga	aattgttatc	3540
cgctcacaat	tccacacaac	atacgagccg	gaagcataaa Page	gtgtaaagcc 19	tggggtgcct	3600

aatgagtgag	ctaactcaca	ttaattgcgt	tgcgctcact	gcccgctttc	cagtcgggaa	3660
acctgtcgtg	ccagctgcat	taatgaatcg	gccaacgcgc	ggggagaggc	ggtttgcgta	3720
ttgggcgctc	ttccgcttcc	tcgctcactg	actcgctgcg	ctcggtcgtt	cggctgcggc	3780
gagcggtatc	agctcactca	aaggcggtaa	tacggttatc	cacagaatca	ggggataacg	3840
caggaaagaa	catgtgagca	aaaggccagc	aaaaggccag	gaaccgtaaa	aaggccgcgt	3900
tgctggcgtt	tttccatagg	ctccgccccc	ctgacgagca	tcacaaaaat	cgacgctcaa	3960
gtcagaggtg	gcgaaacccg	acaggactat	aaagatacca	ggcgtttccc	cctggaagct	4020
ccctcgtgcg	ctctcctgtt	ccgaccctgc	cgcttaccgg	atacctgtcc	gcctttctcc	4080
cttcgggaag	cgtggcgctt	tctcatagct	cacgctgtag	gtatctcagt	tcggtgtagg	4140
tcgttcgctc	caagctgggc	tgtgtgcacg	aacccccgt	tcagcccgac	cgctgcgcct	4200
tatccggtaa	ctatcgtctt	gagtccaacc	cggtaagaca	cgacttatcg	ccactggcag	4260
cagccactgg	taacaggatt	agcagagcga	ggtatgtagg	cggtgctaca	gagttcttga	4320
agtggtggcc	taactacggc	tacactagaa	ggacagtatt	tggtatctgc	gctctgctga	4380
agccagttac	cttcggaaaa	agagttggta	gctcttgatc	cggcaaacaa	accaccgctg	4440
gtagcggtgg	tttttttgtt	tgcaagcagc	agattacgcg	cagaaaaaaa	ggatctcaag	4500
aagatccttt	gatcttttct	acggggtctg	acgctcagtg	gaacgaaaac	tcacgttaag	4560
ggattttggt	catgagatta	tcaaaaagga	tcttcaccta	gatcctttta	aattaaaaat	4620
gaagttttaa	atcaatctaa	agtatatatg	agtaaacttg	gtctgacagt	taccaatgct	4680
taatcagtga	ggcacctatc	tcagcgatct	gtctatttcg	ttcatccata	gttgcctgac	4740
tccccgtcgt	gtagataact	acgatacggg	agggcttacc	atctggcccc	agtgctgcaa	4800
tgataccgcg	agacccacgc	tcaccggctc	cagatttatc	agcaataaac	cagccagccg	4860
gaagggccga	gcgcagaagt	ggtcctgcaa	ctttatccgc	ctccatccag	tctattaatt	4920
gttgccggga	agctagagta	agtagttcgc	cagttaatag	tttgcgcaac	gttgttgcca	4980
ttgctacagg	catcgtggtg	tcacgctcgt	cgtttggtat	ggcttcattc	agctccggtt	5040
cccaacgatc	aaggcgagtt	acatgatccc	ccatgttgtg	caaaaaagcg	gttagctcct	5100
tcggtcctcc	gatcgttgtc	agaagtaagt	tggccgcagt	gttatcactc	atggttatgg	5160
cagcactgca	taattctctt	actgtcatgc	catccgtaag	atgcttttct	gtgactggtg	5220
agtactcaac	caagtcattc	tgagaatagt	gtatgcggcg	accgagttgc	tcttgcccgg	5280
cgtcaatacg	ggataatacc	gcgccacata	gcagaacttt	aaaagtgctc	atcattggaa	5340
aacgttcttc	ggggcgaaaa	ctctcaagga	tcttaccgct	gttgagatcc	agttcgatgt	5400
aacccactcg	tgcacccaac	tgatcttcag	catcttttac	tttcaccagc	gtttctgggt	5460

USAV2002-0187 US PCTsequence listing.txt gagcaaaaac aggaaggcaa aatgccgcaa aaaagggaat aagggcgaca cggaaatgtt	5520
gaatactcat actcttcctt tttcaatatt attgaagcat ttatcagggt tattgtctca	5580
tgagcggata catatttgaa tgtatttaga aaaataaaca aataggggtt ccgcgcacat	5640
ttccccgaaa agtgccacct gacgtctaag aaaccattat tatcatgaca ttaacctata	5700
aaaataggcg tatcacgagg ccctttcgtc tcgcgcgttt cggtgatgac ggtgaaaacc	5760
tctgacacat gcagctcccg gagacggtca cagcttgtct gtaagcggat gccgggagca	5820
gacaagcccg tcagggcgcg tcagcgggtg ttggcgggtg tcggggctgg cttaactatg	5880
cggcatcaga gcagattgta ctgagagtgc accatatgcg gtgtgaaata ccgcacagat	5940
gcgtaaggag aaaataccgc atcaggcgcc attcgccatt caggctgcgc aactgttggg	6000
aagggcgatc ggtgcgggcc tcttcgctat tacgccagct ggcgaaaggg ggatgtgctg	6060
caaggcgatt aagttgggta acgccagggt tttcccagtc acgacgttgt aaaacgacgg	6120
cgcaaggaat ggtgcatgca aggagatggc gcccaacagt cccccggcca cggggcctgc	6180
caccataccc acgccgaaac aagcgctcat gagcccgaag tggcgagccc gatcttcccc	6240
atcggtgatg tcggcgatat aggcgccagc aaccgcacct gtggcgccgg tgatgccggc	6300
cacgatgcgt ccggcgtaga ggcgattagt ccaatttgtt aaagacagga tatcagtggt	6360
ccaggctcta gttttgactc aacaatatca ccagctgaag cctatagagt acgagccata	6420
gataaaataa aagattttat ttagtctcca gaaaaagggg ggaa	6464
<210> 13 <211> 62 <212> DNA <213> Artificial	
<220> <223> p38 target gene insert	
<400> 13 ccggtgcagg agttgaacaa gacaatacct gattgtcttg ttcagctcct gctttttgga	60
ag	62
<210> 14 <211> 100 <212> DNA <213> Artificial	
<220> <223> H1 promoter sequence	
<400> 14 ccctttctca ccagagtatg tcttgaatat tctaagggtt taggtttctg taaagtgcaa	60
ataccactaa agggtcttgt gtatcgctgt acgtttataa	100